REMARKS

Claims 2-10, 12, 14-15, and 17-19 are currently pending. Claim 12 has been amended. Reconsideration and allowance of pending claims 2-10, 12, 14-15, and 17-19 are respectfully requested.

Claim Rejections 35 USC § 103(a)

Claims 2-5, 6-10, 12, 14-15, and 17-19 have been rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,790,195 ("Ohsawa") in view of U.S. Patent No. 6,100,940 ("Dieterich"). The Examiner suggests that it would have been obvious to one having ordinary skill in the art to incorporate the delayed video of Dieterich into the compression pre-processing apparatus of Ohsawa for delaying the video signal to improve a subsequent coding of the incoming or pre-recorded image sequence and reducing the computation of an encoder.

With due respect, the Examiner has not established a *prima facie* case of obviousness in the rejection of claims 2-5, 6-10, 12, 14-15, and 17-19. First, there is no motivation to combine references Dieterich and Ohsawa. Second, the combination of Dieterich and Ohsawa does not provide a reasonable expectation of success. Finally, the combination of Dieterich and Ohsawa do not teach or suggest all the claim limitations.

Ohsawa discloses an image processing apparatus that supplies an image to a pre-filter circuit 10, an activity detection circuit 11, and a motion magnitude detection circuit 12. The activity circuit 11 checks the frequency component of the image in the frame to be encoded, calculates a value (A) indicative of a degree of activity, and supplies the value (A) to a decision circuit 13. The motion magnitude detection circuit 12 detects the motion vector of a pixel block, detects the number of blocks in which the magnitude of the vector is large, and supplies a value (M) indicative of the magnitude of the motion to the decision circuit 13 as well. *Col. 4, lines 10-25.* Using the detected activity and magnitude motion information, the decision circuit 13 generates a pre-filter coefficient control signal 13a, which is fed back into the pre-filter circuit 10. The pre-filter circuit 10 uses the control signal 13a to execute a space filter process to enhance or weaken the effect of a low pass filter on the image signal. *Col. 3, lines 21-23.* After

being processed by the pre-filter circuit 10, the image is passed to a standard compression processing chain (blocks 31-34), which encodes the image before being output by the code amount monitor unit 35.

In contrast to the view of the Examiner, the decisions taken by decision circuit 13 cannot be considered as the "compression coding decisions" of the claimed invention. Decision circuit 13 outputs a filter coefficient control signal 13a for controlling the pre-filter circuit 10 and a value to control the quantiser step supplied to selector 16. These are not compression coding decisions," but are merely coefficients that influence certain aspects of the compression coding process carried out by the disclosed apparatus. In other words, the coefficients are inputs to the coding process, but not decisions made or generated by the process.

In addition, Ohsawa does not disclose the presence of the claimed video pathway. There is no disclosure of an upstream process for taking coding decisions and a separate downstream encoder, separated by a video pathway that carries the input video and the representations of coding decisions to the downstream encoder. Ohsawa merely discloses a modified compression coder where the video signal input at 22 is sequentially processed by blocks 10, 31, 32, 33, 34 and 35.

Dieterich discloses an apparatus for pre-processing an image sequence that includes a delay 170. The delay 170 serves to hold or delay a portion of the image sequence so that a side information extractor 150 has sufficient time to deduce side information (e.g., the location of scene cuts, the complexity of a particular frame, the motion information for the frames) for the portion of the image sequence on a path 175 (see Fig. 1) that is being delayed. *Col. 3, lines 36-40.* The extracted side information is then inserted with the image sequence and then forwarded to the encoder 180. *Col 8, lines 42-44.* As a result, the encoder 180 receives a delayed video signal 175 and the signal from the side information extractor 150 concurrently, which is alleged to improve the coding completed by the encoder 180.

There is no motivation or suggestion to incorporate the delay 170 from Dieterich into the compression pre-processing apparatus of Ohsawa. As described above, the delay 170 of Dieterich is included so that the image signal from the side information extractor 150 *and* the signal from the image source can be received by the downstream encoder 180 concurrently (i.e.,

the image is passed on two separate "paths" to the encoder 180). Ohsawa, alternatively, discloses only a single image path that includes a single encoding process (blocks 31-34). For example, the pre-processing apparatus (blocks 11, 12, and 13) is not an image path, in that it does not return or output an image to the encoder 34. The only signals that are transmitted by the pre-processing apparatus of Ohsawa (e.g., the decision circuit 13) are the filter coefficient control signal 13a (e.g., a "K" value) and a fuzzy interference signal (e.g., a "Q" value), neither of which include information from the original image signal. Therefore, the only image path present in the Ohsawa reference consists of the components 31, 32, 33, and 34. As such, it would be unreasonable to combine Dieterich and Ohsawa, because Dieterich discloses two image paths input images to an encoder 180, while Ohsawa discloses a single image path.

Additionally, even if there was some suggestion or motivation to combine Dieterich and Ohsawa, the combination does not produce an apparatus with a reasonable expectation of success. The delay 170 of Dieterich could not be incorporated into the compression pre-processing apparatus of Ohsawa (the "pre-processing apparatus" including the activity detection circuit 11, the motion magnitude circuit 12, and the decision circuit 13), because Ohsawa includes only a single image path that sequentially encodes the image. Adding a delay into the pre-processing apparatus of Ohsawa would not improve any processing of a downstream encoder. The only result of adding a delay would be a slowing of the sequential processing completed by blocks 31-34. Therefore, the combination of Dieterich and Ohsawa does not produce an apparatus that includes a delay to reduce the computation of an encoder, as suggested by the Examiner.

Finally, the combination of Ohsawa and Dieterich do not include all of the claimed elements, as described in greater detail below.

Independent claim 9

Independent claim 9 requires, among other things, "taking compression coding decisions including picture rate coding decisions and macroblock rate coding decisions." In contrast to the view of the Examiner, as described above, Ohsawa does not teach or suggest "compression coding decisions." The decision circuit 13 outputs a filter coefficient control signal 13a (pre-filter coefficient K) for controlling the pre-filter circuit 10, and a value (Q value) to control the

quantization step supplied to selector 16. These values do not have a direct impact on the encoder circuit 34 of Ohsawa, only the pre-filter circuit 10 and the selector 16, respectively.

Independent claim 9 also requires, among other things, "processed coding decisions for passage with the input video signal along a video pathway, wherein the input video signal which is passed along the video pathway with the representation of the coding decisions undergoes no processing other than delay." Neither Ohsawa nor Dieterich teach or suggest, alone or in combination, the presence of the claimed video pathway. As previously described, Ohsawa discloses a single image path which sequentially processes the video signal using blocks 10 and 31-35. The preprocessing apparatus (blocks 11-13) does not constitute an image path, and the preprocessing apparatus does not return or output an image signal to the encoder 34.

Additionally, neither the signals provided to the pre-filter circuit 10 nor the selector 16 include the input video signal from the decision circuit 13. Additionally, even though Dieterich discloses an apparatus having a delayed video path 174, Dieterich does not disclose "processed coding decisions for passage with the input video signal." The only thing that is passed with the delayed signal 175 of Dieterich is a video signal that includes side information 165. Side information 165 includes, as disclosed by Dieterich, the location of scene cuts, the complexity of a particular frame, and motion information for particular frames. *Col. 1, lines 66-77; Col. 2, lines 1-3.* Such information does not constitute coding decisions. Therefore, neither Ohsawa nor Dieterich disclose "the input video signal which is passed along the video pathway with the representation of the coding decisions."

Independent claim 12

Independent claim 12 requires, among other things, "forming a representation of the coding decisions: outputting said representation from the compression coding step and passing the representation along a video pathway with the input video signal; and downstream of the video pathway, compression encoding the input video signal in accordance with said coding decisions, wherein the input video signal which is passed along the video pathway with the representation of the coding decisions undergoes no processing other than delay."

As described above, neither Ohsawa nor Dieterich teach or suggest, alone or in combination, outputting coding representations from a compression coding step, and passing the representation along a video pathway with an input video signal.

Additionally, Ohsawa and Dieterich do not teach or suggest "downstream of the video pathway, compression encoding the input video signal in accordance with said coding decisions." As previously described, Ohsawa includes only a single video path that sequentially encodes image data. Alternatively, Dieterich discloses passing side information with the delayed input video signal. However, the delayed input video signal cannot be compression encoded in accordance with the side information, because side information consists of information concerning the image sequence (*Col. 1, lines 65-66*), not with coding decisions.

Independent claim 14

Independent claim 14 requires, among other things, "forming a representation of the coding decisions; outputting said representation from the compression coding step and passing the representation along a video pathway with the input video signal; and downstream of the video pathway compression encoding the input video signal in accordance with said coding decisions, wherein the input video signal which is passed along the video pathway with the representation of the coding decisions undergoes no compression processing."

As described above, neither Ohsawa nor Dieterich teach or suggest, among other things, forming a representation of coding decisions and passing the representation along a video pathway with the input video signal. Additionally, neither Ohsawa nor Dieterich teach or suggest compression encoding the input video signal in accordance with the coding decisions downstream of the video pathway.

Independent claim 15

Independent claim 15 requires, among other things, "an output for outputting, from the compression pre-processing apparatus, the processed coding decisions for passage with the input video signal along a video pathway, wherein the input video signal which is passed along the video pathway with the processed coding decisions undergoes no compression processing."

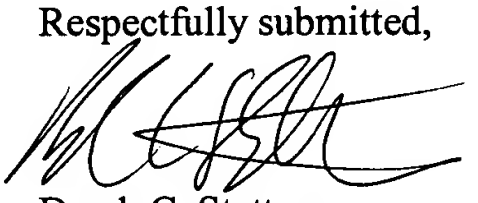
As described above, neither Ohsawa nor Dieterich teaches or suggests outputting, from a compression pre-processing apparatus, processed coding decisions for passage with the input video signal along a video pathway. For example, the signals transmitted by the decision circuit 13 of Ohsawa do not constitute processed coding decisions. Additionally, even if the signals transmitted from the decision circuit 13 of Ohsawa were to be considered processed coding decisions, the signals transmitted from the decision circuit 13 are not passed with the input video signal along a video pathway.

For at least the reasons described above, and for other reasons not specifically addressed herein, independent claims 9, 12, 14, and 15 are allowable. Additionally, claims 2-9 and 17-19, which depend from the allowable independent claims, are allowable for at least the same reasons the independent claims are allowable.

CONCLUSION

In light of the above, Applicant respectfully requests reconsideration and allowance of pending Claims 2-10, 12, 14-15, and 17-19.

Respectfully submitted,



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